



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,889	06/30/2005	Andreas Lendlein	Gruneck 0005-US	8535
23719 7590 07/10/2009 KALOW & SPRINGUT LLP 488 MADISON AVENUE 19TH FLOOR NEW YORK, NY 10022				
EXAMINER				
SIMMONS WILLIS, TRACEY A				
ART UNIT		PAPER NUMBER		
1619				
MAIL DATE		DELIVERY MODE		
07/10/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/510,889

Applicant(s)

LENDLEIN ET AL.

Examiner

TRACEY SIMMONS WILLIS

Art Unit

1619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-19 and 21-29 is/are pending in the application.
- 4a) Of the above claim(s) 21-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-19 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S5108)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Status of the Claims

Applicant's amendments filed April 14, 2009 to claims 1, 4-5, 16, and 29 have been entered. Claims 3 and 20 have been cancelled. Claims 1-2, 4-19, and 21-29 remain pending in the current application, of which claims 1-2, 4-19, and 29 are being considered on their merits. Claims 21-28 remain withdrawn from consideration at this time. References not included with this Office action can be found in a prior action. Any rejections or objections of record not particularly addressed below are withdrawn in light of the claim amendments and applicant's comments.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-19, and 29 are rejected under 35 U.S.C. 103(a) as being obvious over International Patent Application Publication WO/2002/09655 (Rollat-Corvol et al) in view of International Patent Application Publication WO/1999/42528 (Langer et al) and U.S. Patent 5,683,685 (Hirano et al) and Japanese Patent 04-041416 (Akira).

Rollat-Corvol teach of reshapable hair styling compositions [pg 1, line 6] comprising polyurethane [pg 2, line 11] in which the composition can contain cationic groups to stabilize the dispersion or cationic surfactants [pg 10, line 5 and pg 21, lines 4-5]. The composition of Rollat-

Corvol et al is applied before, during, or after shaping the hair [pg 20, lines 15-17]. After the hair is dried and styled, the style is removed and restored by brushing [pg 24, line 24 and pg 24, lines 8-9]. These features meet the limitations of instant claims 1 and 17, as the first active principle is formed from compounds [pg 3, lines 1-8] and the physical change and stimulation cited is done by drying and brushing the hair. With regards to instant claim 2, the synergistic increased shape memory effect as cited is an inherent property of the composition as the cationic agent can be used to improve the dispersity of the memory shape polymer allowing for better application to the hair. Rollat-Corvol et al teach of a cationic compound of structure $R-N^+(R_2)[(OCH_2CH_2)_nOH]_2X^-$ in which two hydroxyalkyl groups are present and R and R_2 can be kC_{8-18} aralkyl structures and X- is an anion [pg 10, lines 9-13]. The requirement of the cationic surfactant cited in instant claim 18 in which R^1 to R^4 can independently be hydroxyalkyl groups and alkaryl groups having 1 to 22 carbon atoms is anticipated by the stabilizing cationic compound of Rollat-Corvol et al.

Rollat-Corvol do not specifically teach of the first active principle being a crosslinkable macromer with crosslinkable (soft) and thermoplastic (hard) segments, of the properties of the shape memory polymer, of the specific transition temperatures cited to reshape the hair, of a cationic polymer in the composition, specifically of the concentrations of shape memory polymer, or of cationic polymer in the composition.

Langer teaches of shaped memory polymer compositions and methods of preparation of such shape memory polymers by combining a hard and soft segment with crosslinkable groups that are linked either by an interpenetrating network, a mixed interpenetrating network, or physical interactions [abstract]. The shape memory polymers contain a hard and soft segment

[pg 4, top of par 4], in which the hard segment can contain one physical crosslink [pg 5, top of par 2]. The shape memory polymers in one embodiment can be comprised of mixed interpenetrating networks which include one physically crosslinked polymer network and one covalently crosslinked polymer network [pg 16, middle of pg] in which the shape is fixed by the covalently crosslinked network. Langer teaches of the macromonomers existing as hydrogels which can be formed from blends and copolymers of compounds such as methacrylic acid and polyethylene glycol [pg 13, par 4] meeting the limitations of instant claims 6 and 7. While Langer is silent to the specific arrangement of the polymers as cited in instant claim 5, with the thermoplastic polymer or oligomer segment between chemically crosslinkable groups, Langer does teach of polymer blends which form two hard thermoplastic segments and one soft segment [pg 17, par 3] in which the soft segments of the two components blended is the same and is melted together. As a result, two hard segments enclose the soft segment. This arrangement the thermoplastic segment maintains the original shape and the reactive segments allow for a second shape to be formed as disclosed by Langer [pg 25, par 1(continuing paragraph)].

Akira teaches of a hair composition with 0.01 to 60% shape memorizing resin [abstract]. The concentration of Akira encompasses that of the instant claim.

Hirano et al teach of hair cosmetic compositions in which cationic polymers are incorporated at a concentration of 0.05 to 10% wt of the composition [col 11, line 44]. The cationic polymers include dimethyldiallylammonium chloride/acrylic amide/sodium acrylate [col 8, lines 47-48].

One of ordinary skill in the art at the time the invention was made would have been motivated to arrange the segments in reverse order of Langer by placing the thermoplastic

segment in the middle as Langer teach other kinds of blends can be made if at least one segment of the two components blended is the same [pg 17, par 4]. This meets the limitation of instant claims 5 and 8. The preferred T_{trans} of the hard segment is within 30 and 150 °C and is at least 10 °C higher than that of the soft segment [pg 4, bottom of fifth par]. The physical stimulus of heat application to the composition in the hair as taught by Rollat-Corvol would cause the memory shape to be fixed and meet the limitations of instant claim 9. Langer also teach that an object having a shape in memory can be formed by heating the composition above the T_{trans} of the hard segment and subsequently cooled below the T_{trans} of the soft segment and if the object is to be formed into a second shape, the object can be heated above the T_{trans} of the soft segment and below that of the hard segment [pg 5, par 3], meeting the limitations of instant claims 4 and 10-12. Langer teach of the degree of crystallinity of the memory shape polymer being between 3 and 80% [pg 10, par 5] with a ratio of elastic modulus above and below the T_{trans} is 20 or more [pg 11, top of pg], meeting the limitations of instant claim 13. An example of the polymers as taught by Langer include copolyesterurethane [pg 29, par 4], meeting the limitation of instant claim 14.

It would have been *prima facie* obvious for one of ordinary skill in the art at the time of the invention to use the shape memory polymer compositions as taught by Langer et al in the hair compositions of Rollat-Corvol et al as the shape memory polymers have the ability to memorize more than one shape allowing the hair [pg 3, bottom of pg] to be fixed in multiple forms.

With regard to instant claim 15, Rollat-Corvol et al teach of the components of the shape polymer including two polyactive hydrogen compounds (one soluble and one insoluble) with a

polyisocyanate [pg 3, lines 1-6], the polyactive hydrogen compounds being polyester polyols based on diols of greater than 20 carbon atoms [pg 7, line 1]. The polyols used are chosen from alkyl, aryl, aralkyl structures optionally substituted by N, O, or S [pg 6, lines 9-10] and the polyisocyanates can be diisocyanates [pg 8, line 7]. Langer et al teach of formation of the shape memory polymer from α,ω -dihydroxy[oligo(ethylene glycol glycolate)ethylene oligo(ethylene glycol glycolate)] and α,ω -dihydroxy[oligo(L-lactate-co-glycolate)ethylene oligo(L-lactate-co-glycolate)], representative of an α,ω -dihydroxyoligoester and α,ω -dihydroxyoligolactone [pg 30, top and middle (lines 18-19) of pg].

While Rollat-Corvol do not specifically teach of α,ω -substituted macrodiols one of ordinary skill in the art at the time the invention was made would have found it *prima facie* obvious to use the macrodiols of Langer with the diisocyanates as they are a type of polyol described by Rollat-Corvol.

It would have been *prima facie* obvious for one of ordinary skill in the art at the time the invention was made to add cationic copolymers to the invention of Rollat-Corvol et al to provide excellent conditioning effects without affecting the firmness and elasticity of the hair [col 8, lines 17-21] as it is being treated. It would have been *prima facie* obvious for one of ordinary skill in the art at the time of the invention to have optimized the concentrations of shape memory resin and cationic group to allow the hair to be conditioned while treated and readily changed without added stiffness possibly presented by the cationic group. This meets the limitations of claims 1 and 19.

Response to Arguments

Applicant's arguments filed April 14, 2009 with regards to the rejections made under 35 U.S.C. §102(b), have been fully considered and are addressed by the new grounds of rejection.

Applicant's arguments filed April 14, 2009 with regards to the rejections made under 35 U.S.C. §103(a), applicants allege:

- Rollat-Corvol, Hirano, and Akira do not teach the limitations of previously pending claim 3 (pg 1),
- Rollat-Corvol and Langer do not teach the limitations of previously pending claim 20 (pg 11), and

Applicant's arguments have been fully considered and are addressed by the new grounds of rejection.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned

with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-2 and 4-15 remain provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7, 11-18, of copending Application No. 10/511,019. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims anticipate the claims of co-pending application no. 10/511,019.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Instant claim 1 is a species of co-pending claim 1 in that a cationic agent is also required. It would have been *prima facie* obvious for one of ordinary skill in the art at the time of the invention to add a cationic agent to the invention for the added benefit of softness to the hair as commonly provided by cationic agents such as cationic surfactants.

Instant claim 2 is equivalent to identical to co-pending claims 1 and 11 in that two active agents are needed for increase memory effect. Instant claims 4-16 are identical in specified limitations to co-pending claims 3-7 and 12-19.

Response to Arguments

Applicant's arguments filed April 14, 2009 with regards to the rejections made under obviousness-type double patenting have been fully considered and are not found persuasive as applicant has amended the claims of the instant application; however the scope of the claims is the same as previously presented.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE MONTH shortened statutory period, then the shortened period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRACEY SIMMONS WILLIS whose telephone number is (571)270-5861. The examiner can normally be reached on Monday to Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, can be reached at (571)272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/T. S.W./

Examiner, Art Unit 1619

/MP WOODWARD/
Supervisory Patent Examiner, Art Unit 1615